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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/626,065

07/24/2003

Chris Aschoff

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EXAMINER

GORDON, RAQUEL YVETTE


ART UNIT

PAPER NUMBER

2853

DATE MAILED: 10/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/626,065	Applicant(s) ASCHOFF ET AL.	
	Examiner Raquel Y. Gordon	Art Unit 2853	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 7/24/2003 (this application).
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 34-46 is/are allowed.
- 6) ☒ Claim(s) 1-31, 47, 51 and 52 is/are rejected.
- 7) ☒ Claim(s) 32, 33 and 48-50 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date: _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>7/24/2003</u>   | 6) <input type="checkbox"/> Other: _____                                    |

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-31, 47, 51, and 52 are rejected under 35 U.S.C. 102(e) as being anticipated by Usui (US006561633B2). Usui teaches every element of the instant claims including:

1. A method for manufacturing a fluid-ejection device capable of ejecting fluid onto media, the method comprising:  
adhering a fluid-ejecting substrate (103) of the fluid-ejection device to a carrier (100, 101) of the fluid-ejection device by drawing an adhesive between the fluid-ejecting substrate and the carrier using capillary action (col 13, ln 40-55);
2. The method of claim 1, further comprising aligning each of a plurality of slots (106) of the fluid-ejecting substrate with a respective one of a plurality of channels (region rear 105) of the carrier before drawing the adhesive between the fluid-ejecting substrate and the carrier (col 13, ln 40-50);

3. The method of claim 1, wherein drawing the adhesive between the fluid ejecting substrate and the carrier using capillary action causes each of a plurality of slots of the fluid-ejecting substrate to self-align with a respective one of a plurality of channels of the carrier (col 13, ln 40-50);

4. The method of claim 1, further comprising forming a gap (109) between the fluid - ejecting substrate (103) and the carrier (100, 101) before drawing the adhesive between the fluid-ejecting substrate and the carrier, wherein drawing the adhesive between the fluid-ejecting substrate and the carrier comprises drawing the adhesive through the gap (col 13, ln 40-50);

5. The method of claim 4, wherein forming the gap (109) between the fluid-ejecting substrate and the carrier (100, 101) comprises disposing spacers between the fluid-ejecting substrate and the carrier;

6. The method of claim 1, further comprising disposing the fluid-ejecting substrate in a recess in the carrier before drawing the adhesive between the fluid-ejecting substrate and the carrier and dispensing the adhesive into the recess before drawing the adhesive between the fluid-ejecting substrate and the carrier (clo 13, ln 40-50);

7. The method of claim 6, wherein dispensing the adhesive into the recess comprises directing the adhesive through a flow passage disposed in the carrier that opens into the recess (region near 105, col 13, lns 40-50);

8. The method of claim 1, wherein drawing the adhesive between the fluid-ejecting substrate and the carrier comprises drawing the adhesive from one or more edges of the fluid-ejecting substrate (col 13, lns 40-50);

9. The method of claim 1, wherein adhering the fluid-ejecting substrate to the carrier comprises curing the adhesive after drawing the adhesive between the fluid-ejecting substrate and the carrier (col 14, lns 56-62);

10. The method of claim 1, further comprising heating the adhesive, the fluid-ejecting substrate, and the carrier before drawing the adhesive between the fluid-ejecting substrate and the carrier (col 13, lns 40-50);

11. The method of claim 1, further comprising dispensing the adhesive into a moat in the carrier before drawing the adhesive between the fluid-ejecting substrate and the carrier ( $\Delta g$ );

12. The method of claim 11, further comprising bringing the fluid-ejecting substrate into contact with the adhesive contained within the moat before drawing the adhesive between the fluid-ejecting substrate and the carrier, wherein bringing the fluid ejecting substrate into contact with the adhesive causes the adhesive to be drawn between the fluid-ejecting substrate and the carrier (col 14, lns 38-56);

13. A method for manufacturing a fluid-ejection device capable of ejecting fluid onto media, the method comprising:

forming a gap (109) between a first surface of a fluid-ejecting substrate (103) of the fluid ejection device and a second surface of a carrier (101) of the fluid ejection device, wherein the first surface surrounds a plurality of slots (106) in the fluid-ejecting substrate and the second surface surrounds a plurality of channels (region near 105, col 13, Ins 40-50) in the carrier; and

drawing an adhesive through the gap using capillary action so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots or the channels, wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces (col 13, Ins 40-50);

14. The method of claim 13, wherein drawing the adhesive through the gap comprises drawing the adhesive from one or more edges (105) of the fluid-ejecting substrate (col 13, Ins 40-50);

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15. The method of claim 13, wherein forming the gap between the first and second surfaces comprises disposing spacers (81) between the first and second surfaces;

16. The method of claim 13, further comprising dispensing the adhesive into a moat disposed in the carrier around the second surface before drawing the adhesive through the gap ( $\Delta g$ );

17. The method of claim 16, wherein forming the gap comprises bringing the fluid-ejecting substrate into contact with the adhesive contained within the moat, wherein bringing the fluid-ejecting substrate into contact with the adhesive causes the adhesive to be drawn through the gap (col 14, lns 38-50);

18. A method for manufacturing a fluid-ejection device capable of ejecting fluid onto media, the method comprising:

disposing a fluid-ejecting substrate of the fluid-ejection device in a recess of a carrier of the fluid-ejection device to form a gap between a first surface of the fluid-ejecting substrate and a second surface of the recess, wherein the first surface surrounds a

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plurality of slots in the fluid-ejecting substrate and the second surface surrounds a plurality of channels in the carrier (col 13, lns 40-50);  
dispensing an adhesive into the recess (col 13, lns 40-50); and

drawing the adhesive from at least one edge of the fluid-ejecting substrate through the gap using capillary action so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots (106) or the channels (regions near 105), wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces (col 13, lns 40-50);

19. The method of claim 18, wherein dispensing the adhesive into the recess comprises directing the adhesive through a flow passage disposed in the carrier that opens into the recess (region 105 col 13, lns 40-50);

20. The method of claim 18, further comprising aligning each of the plurality of slots with a respective one of the plurality of channels before dispensing the adhesive into the recess (col 13, lns 40-50);

21. The method of claim 18, wherein drawing the adhesive through the gap using capillary action causes each of the plurality of slots to self-align with a respective one of the plurality of channels (col 13, Ins 40-50);

22. The method of claim 18, wherein dispensing the adhesive into the recess comprises dispensing the adhesive into a moat ( $\Delta g$ ) disposed within the recess (region near 1050, col 13, Ins 40-50); and around the second surface before disposing the fluid-ejecting substrate in the recess, wherein disposing the fluid-ejecting substrate in the recess comprises bringing the fluid-ejecting substrate into contact with the adhesive contained within the moat, wherein bringing the fluid-ejecting substrate into contact with the adhesive causes the adhesive to be drawn through the gap (col 14, Ins 38-50);

23. A method for manufacturing a fluid-ejection device capable of ejecting fluid onto media, the method comprising:

forming a moat ( $\Delta g$ ) in a carrier of the fluid-ejection device around a first surface of the carrier, wherein the first surface surrounds a plurality of channels in the carrier (col 14, Ins 38-50; dispensing an adhesive into the moat (col 14, Ins 38-50);

bringing a fluid-ejecting substrate of the fluid-ejection device into contact with the adhesive contained within the moat ( $\Delta g$ ) wherein the fluid-ejecting substrate (103) has a

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second surface surrounding a plurality of slots (106) in the fluid-ejecting substrate (103);  
and

drawing the adhesive from at least one edge of the fluid-ejecting substrate through a gap between the first and second surfaces using capillary action in response to contacting the adhesive with the fluid-ejecting substrate so as to distribute the adhesive over the first and second surfaces and so that the adhesive does not flow into the slots or the channels, wherein the adhesive is for adhering the fluid-ejecting substrate to the carrier at the first and second surfaces (col 14, lns 40-50);

24. The method of claim 23, wherein dispensing the adhesive into the moat comprises directing the adhesive through a flow passage disposed in the carrier (col 14, lns 38-50);

25. The method of claim 23, wherein drawing the adhesive through the gap using capillary action causes each of the plurality of slots to self-align with a respective one of the plurality of channels (col 13, lns 40-50);

26. The method of claim 23, wherein forming the moat in the carrier around the first surface of the carrier comprises forming the moat ( $\Delta g$ ) below the level of the first surface (see fig 26);

27. A method for controlling a flow of a multi-component fluid over a surface, the method comprising:

increasing a viscosity of the multi-component fluid by drawing a component from the multi-component fluid by capillary action into one or more channels disposed in the surface, wherein increasing the viscosity acts to control the flow of the multi-component fluid by slowing or stopping the flow of the multi-component fluid (see col 13, lns 40-50);

28. The method of claim 27, further comprising directing the multi-component fluid into the one or more channels before drawing the component from the multi-component fluid (see fig 26);

29. The method of claim 27, wherein increasing the viscosity of the multicomponent fluid by drawing the component from the multi-component fluid by capillary action into the one or more channels comprises directing the multi-component fluid through a first

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channel segment of the one or more channels and drawing the component through a second channel segment of the one or more channels that is connected to the first channel segment and that has a smaller flow cross-section than the first channel segment (col 13, lns 40-50);

30. The method of claim 27, wherein drawing the component from the multi-component fluid into one or more channels (105) comprises flowing the component substantially parallel to the surface within the one or more channels (see fig 21b)

31. The method of claim 27, wherein drawing the component from the multi-component fluid into one or more channels (105) comprises drawing the component into the one or more channels so that the component is substantially perpendicular to the surface and a boundary of the multi-component fluid (see fig 21b);

47. A fluid-ejection device comprising:

a carrier (100, 101);

a fluid-ejecting substrate (103) disposed on the carrier and fluidly and electrically coupled to the carrier (see fig 21A); and

a plurality of channels (105) disposed in a surface of the fluid-ejecting substrate between electrical contacts of the fluid-ejecting (103) substrate and a plurality of orifices in the surface of the fluid-ejecting substrate (103, see figs 1 and 21a, 21b);

51. The fluid-ejection device of claim 47, further comprising electrical connectors, disposed on a surface of the carrier, that are connected to the electrical contacts by electrical interconnects (see figs 1 and 21a and 21b);

52. The fluid-ejection device of claim 47, further comprising resistors disposed in the fluid-ejecting substrate adjacent the orifices and electrically connected to the electrical contacts (col 6, lns 27-26).

### ***Allowable Subject Matter***

Claims 34-46 are allowed.

Claims 32, 33, and 48-50 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Reasons for Indicating Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter. For example, several Non-Patent Literature documents referenced on IDS filed 7/24/2004 generally discuss encapsulants.

However, the following claim combinations including the **encapsulant** specifics claimed are not taught by the prior art:

32. The method of claim 27, wherein drawing the first component from the multi-component fluid into one or more channels comprises drawing a resin from a multi-component encapsulant.

33. The method of claim 32, wherein drawing the first component from the multi-component fluid into one or more channels increases a filler concentration of the multi-component encapsulant.

34. A method for encapsulating electrical elements of a fluid-ejection device capable of ejecting fluid onto media, the method comprising:

forming a plurality of channels in a surface of a fluid-ejecting substrate of the fluid-ejection device between the electrical elements and a plurality of orifices of the fluid-ejecting substrate; directing a flow of encapsulant onto the electrical elements; and controlling spreading of the encapsulant over the surface using the plurality of channels if the encapsulant spreads to the plurality of channels by increasing a viscosity of the

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encapsulant by drawing a resin from the encapsulant by capillary action into one or more of the plurality of channels.

35. The method of claim 34, wherein controlling spreading of the encapsulant over the surface comprises one of stopping or slowing spreading of the encapsulant.

36. The method of claim 34, wherein forming the plurality of channels in the surface of the fluid-ejecting substrate comprises forming channels comprising first and second interconnected channel segments, wherein a flow cross-section of the first channel segment is larger than a flow cross-section of the second channel segment.

37. The method of claim 36, wherein forming channels comprising first and second interconnected channel segments comprises sizing the second channel segment so that the second channel segment acts to prevent a flow of the encapsulant from flowing through the second channel segment.

38. The method of claim 36, wherein forming channels comprising first and second interconnected channel segments comprises sizing the second channel segment so that

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the flow cross-section of the second channel segment is smaller than particles of a filler of the encapsulant.

39. The method of claim 36, wherein forming channels comprising first and second interconnected channel segments comprises interconnecting the first and second interconnected channel segments with a taper or a step.

40. The method of claim 36, wherein increasing the viscosity of the encapsulant by drawing the resin from the encapsulant by capillary action into one or more of the plurality of channels comprises directing the encapsulant through the first channel segment and drawing the resin through the second channel segment.

41. A fluid-ejecting substrate comprising:  
means for expelling the fluid from the fluid-ejecting substrate;  
means for electrically connecting the fluid expelling means to a power source;

means for producing capillary action for drawing a resin from an encapsulant so as to increase a viscosity of the encapsulant for controlling spreading of the encapsulant

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when the encapsulant is disposed on the electrical connecting means and if the encapsulant spreads toward the fluid-ejecting means.

42. The fluid-ejecting substrate of claim 41, wherein the fluid expelling means comprises a plurality of orifices and a plurality of electrical resistors;

43. The fluid-ejecting substrate of claim 41, wherein the means for producing capillary action comprises a plurality of channels disposed in a surface of the fluid-ejecting substrate;

44. The fluid-ejecting substrate of claim 41, wherein the fluid-ejecting substrate is fluidly and electrically coupled to a print cartridge;

45. The fluid-ejecting substrate of claim 41, wherein the fluid-ejecting substrate is fluidly and electrically coupled to a carrier of a print head;

46. The fluid-ejecting substrate of claim 45, wherein the print head is fluidly coupled to an ink reservoir by a flexible conduit;

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48. The fluid-ejection device of claim 47, further comprising an encapsulant disposed over the electrical contacts;

49. The fluid-ejection device of claim 48, wherein the eneapsulant extends over a portion of the plurality of channels;

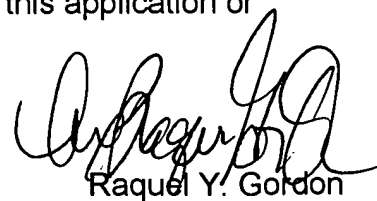
50. The fluid-ejection device of claim 48, wherein channels are for producing capillary action for drawing a resin from the encapsulant so as to increase a viscosity of the encapsulant for controlling spreading of the encapsulant when the encapsulant is disposed on the electrical contacts.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Raquel Y. Gordon, whose telephone number is (571) 272-2145. The Examiner can normally be reached on M Tu Th and F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Stephen Meier can be reached on (571) 272-2149. A fax number is available upon request.

Any inquiry of a general nature or relating to the status of this application or proceeding may be directed to the Examiner or Supervisor.



Raquel Y. Gordon  
Primary Examiner  
Art Unit 2853  
September 30, 2004

**RAQUEL GORDON  
PRIMARY EXAMINER**